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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/955,731      | 09/19/2001  | Jordi Ribas-Corbera  | 3030                | 9471             |

26119 7590 03/08/2007  
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| EXAMINER |
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AN, SHAWN S

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| ART UNIT | PAPER NUMBER |
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2621

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE  | DELIVERY MODE |
|--|------------|---------------|
| 3 MONTHS                               | 03/08/2007 | PAPER         |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

|                              |                        |                      |  |
|------------------------------|------------------------|----------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b>  |  |
|                              | 09/955,731             | RIBAS-CORBERA ET AL. |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>      |  |
|                              | Shawn S. An            | 2621                 |  |

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 November 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 67-132 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 67-132 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>9/23/05, 12/5/06</u>  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Response to Amendment*

1. As per Applicant's instructions as filed on 11/30/06, claims 67, 72, 78-79, 92, 96, 98, 108, 117, 121, 123-124, 128, and 132 have been amended.

### *Response to Remarks*

2. Applicant's arguments with respect to amended claims as above have been carefully considered but are moot in view of the new ground(s) of rejection.

As per Applicant's arguments regarding previously presented claimed limitations, please refer to the following grounds of rejection.

Furthermore, in contrast to Applicant's assertion that Ozkan's decoder parameters constitute a single set of reference decoder parameters for video in one channel, Ozkan discloses decoder parameters constituting multiple sets of reference decoder parameters for video in a plurality of channels, wherein each of the multiple sets comprise a rate parameter ( $R_{min}$ ,  $R_{max}$ ) and a decoder buffer size parameter (buffer size) (Equations 7 and 8), wherein the multiple sets are concurrently available for use in the determining the operating conditions col. 10, lines 54-67; col. 11, lines 1-17; col. 12, lines 14-44).

### *Claim Rejections - 35 U.S.C. § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. Claims 67-77, 79-97, 99-110, 112-116, 121-122, 124-125, and 126-132 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ozkan et al (5,933,451) in view of Hurtst Jr. (6,459,811 B1).

**Regarding claims 67, 70, 92, 99, 108, 112, 121, 128, 130, and 132,** Ozkan et al discloses a computer implemented method, a computer readable medium storing programs for causing a computer system to perform a method (col. 5, lines 63-67; col. 6, lines 1-29), and a system comprising:

receiving a number parameter that indicates how many sets of reference decoder parameters *[note that the reference decoder has been used as adjective term(s)]* being signaled for the given video of a single bit stream (col. 9, lines 10-36; Col. 11, lines 1-57);

a module for receiving multiple sets of reference decoder parameters signaled for given video, wherein each of the multiple sets comprise a rate parameter ( $R_{min}$ ,  $R_{max}$ ) and a decoder buffer size parameter (buffer size), and wherein each of the multiple sets represents a different point along a rate-decoder buffer size curve for the given video (Equations 7 and 8)(col. 10, lines 54-67; col. 11, lines 1-17; col. 12, lines 14-44);

a module for determining an operating condition using any of the multiple sets, wherein the operating conditions indicates peak rate or decoder buffer size for decoding encoded data for the given video, and wherein the multiple sets are concurrently available for use in the determining the operating conditions (col. 10, lines 54-67; col. 11, lines 1-17; col. 12, lines 14-44); and

at a decoder, receiving and decoding the encoded data for the given video in accordance with the operating condition (col. 11, lines 18-55).

Ozkan et al does not seem to particularly disclose receiving for a reference decoder model that specifies constraints on fluctuations of a bitstream of encoded video data.

However, Hurtst, Jr. teaches data transmission of compressed video data comprising receiving for a reference decoder model that specifies constraints on fluctuations of a bitstream of encoded video data in order to prevent the buffer overflow/underflow (col. 4, lines 10-29).

Therefore, it would have been considered obvious to one of skill in the art employing Ozkan's reference to incorporate Hurtst, Jr's teaching as above in order to prevent the buffer overflow/underflow by the decoder.

**Regarding claims 68-69, 93-94, 109, 122, and 129,** Ozkan et al discloses the decoder buffer size and the rate parameter for each of the multiple set being different (col. 10, lines 54-67; col. 11, lines 1-17)

**Regarding claims 71 and 96,** Ozkan et al discloses receiving multiple additional sets of reference decoder parameters signaled for the given video ( $R_{min}$ ,  $R_{max}$ ; Encoder Buffer Size,  $E$ );

re-determining the operating condition using any of the multiple additional sets, (col. 10, lines 54-67; col. 11, lines 1-17; col. 12, lines 14-44); and

at the decoder, receiving and decoding the encoded data for the given video in accordance with the re-determined operating condition (col. 11, lines 18-55).

**Regarding claims 72 and 95,** Ozkan et al discloses receiving a number parameter that indicates how many sets of reference decoder parameters being signaled for the given video (col. 9, lines 10-36; Col. 11, lines 1-57).

**Regarding claim 73,** Ozkan et al discloses selecting a parameter of one of the multiple received sets (col. 10, lines 54-67; col. 11, lines 36-57).

**Regarding claims 74-75, 113, 125, and 131,** Ozkan et al discloses interpolating between parameters of two of the multiple sets (Eq. 8, encoder buffer size  $E_n$ ) (col. 10, lines 54-67), and extrapolating from a parameter of one of the multiple sets (Eq. 7, encoder buffer size  $E$ ) (col. 10, lines 54-67).

**Regarding claims 76-77,** Ozkan et al discloses min peak rate and setting the min peak rate based upon at least one of the decoder buffer size parameters, and setting the decoder buffer size based upon at least one of the rate parameters of the multiple sets (Col. 11, lines 1-57; see also Eq. 8).

**Regarding claim 80,** Ozkan et al discloses parameters comprising initial buffer fullness data (col. 11, lines 36-55).

**Regarding claims 82 and 102**, Ozkan et al discloses each of the multiple sets represents a different point along a rate-decoder buffer size curve for the given video (Equations 7 and 8).

**Regarding claims 83-84 and 103**, Ozkan et al discloses an entire and part of a video sequence (col. 4, lines 63-67; col. 5, lines 1-8).

**Regarding claims 89, 105, and 115**, Ozkan et al discloses the peak (max) rate corresponding to a transmission rate for a network connection during decoding the encoded data (col. 10, lines 27-37).

**Regarding claim 100**, Ozkan et al discloses an initial buffer fullness parameters (col. 10, lines 54-67; col. 11, lines 1-17).

**Regarding claims 79, 97, 110, and 124**, the Examiner takes official notice that a pre/post processor such as band (low or high) pass filter is well known in the art for filtering video comprising a single video bitstream or multiple bitstreams.

Therefore, it would have been considered obvious to one of skill in the art employing Ozkan's reference to recognize the number parameter and the multiple sets could be provided as signaled out of band for the given video for filtering purposes as desired by an user/designer.

**Regarding claims 81 and 101**, the Examiner takes official notice that utilizing leaky bucket model for buffer management is well known in the art. Note: see Eyuboglu et al (5,541,852) (Fig. 8, 802).

Therefore, it would have been considered obvious to one of skill in the art employing Ozkan's reference to recognize the each of the multiple sets could represent a different leaky bucket model for given video for an obvious reason of buffer management.

**Regarding claims 85-87 and 126**, the Examiner takes official notice that a decoder being implemented in such as a handheld computing device, a PC, and a disk media player is well known in the art for decoding compressed video for displaying video images.

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Therefore, it would have been considered obvious to one of skill in the art employing Ozkan's reference to recognize the decoder could easily be implemented in such as a handheld computing device, a PC, and a disk media player for decoding compressed video data for displaying reconstructed video images.

**Regarding claims 88, 104, and 114,** Ozkan et al discloses the peak (maximum) rate corresponding to a transmission rate for a network connection during decoding the encoded data (col. 10, lines 27-37).

Furthermore, the Examiner takes official notice that utilizing a disk drive as a storage device is well known in the art.

Moreover, Ozkan further discloses a bit rate allocator comprising (Fig. 1, 30) plurality of storage devices (32 and 33), the microprocessor (31), and I/O (34).

Therefore, it would have been considered obvious to one of skill in the art employing Ozkan's reference to recognize the peak rate corresponding to a drive speed for a disk during decoding the encoded data in order to prevent the buffer overflow and/or underflow.

**Regarding claims 90-91, 106-107, 116, and 127,** the Examiner takes official notice that decoding the encoded data during live video (real time) transmission and during on-demand transmission for the given video is well known in the art for an obvious reason of decoding encoded video for displaying video images during real time (live) and/or during on-demand such as requested by a plurality of subscribers of cable or satellite system.

Therefore, it would have been considered obvious to one of skill in the art employing Ozkan's reference to recognize decoding the encoded data during live video (real time) transmission and on-demand transmission for the given video for an obvious reason of decoding encoded video for displaying video images during real time (live) and/or during on-demand transmission such as requested by a plurality of subscribers of cable or satellite system.

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5. Claim 117-120 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ozkan et al (5,933,451) in view of Eyuboglu et al (5,541,852) and Hurst Jr. (6,459,811 B1).

**Regarding claim 117**, Ozkan et al discloses a computer implemented method comprising:

receiving multiple sets of reference decoder parameters provided for given video, wherein each of the multiple sets comprise a rate parameter ( $R_{min}$ ,  $R_{max}$ ) and a decoder buffer size parameter (buffer size);

processing the multiple sets, wherein the multiple sets are concurrently available for use in the determination of the operating conditions, and wherein the operating conditions indicates peak rate or decoder buffer size for decoding encoded data for the given video (col. 10, lines 54-67; col. 11, lines 1-17);

receiving multiple additional sets of reference decoder parameters ( $R_{min}$ ,  $R_{max}$ ; Encoder Buffer Size, E) signaled for the given video, and

processing the multiple additional sets, wherein the multiple additional sets are concurrently available for use in re-determination of the operating conditions (col. 10, lines 54-67; col. 11, lines 1-55).

Ozkan et al does not seem to disclose receiving for a reference decoder model that specifies constraints on fluctuations of a bitstream of encoded video data, and multiple sets and additional multiple sets representing a different leaky bucket model for the given video.

However, Eyuboglu et al teaches variable bit-rate packet video communication system utilizing leaky bucket model for buffer management for given video of a single video bitstream (Fig. 8, 802).

Furthermore, Hurst, Jr. teaches data transmission of compressed video data comprising receiving for a reference decoder model that specifies constraints on fluctuations of a bitstream of encoded video data in order to prevent the buffer overflow/underflow (col. 4, lines 10-29).



Therefore, it would have been considered obvious to a person of ordinary skill in the relevant art employing Ozkan's method to incorporate the Eyuboglu's teaching so that Ozkan's multiple sets and additional multiple sets represent a different leaky bucket model for the given video as an efficient way to manage buffer data flow, also incorporate Hurtst Jr's teaching as above in order to prevent the buffer overflow/underflow by the decoder.

**Regarding claim 118**, Ozkan et al discloses the decoder buffer size and the rate parameter for each of the multiple set being different (col. 10, lines 54-67; col. 11, lines 1-17).

**Regarding claim 119**, Ozkan et al discloses interpolating between parameters of two of the multiple sets (Eq. 8, encoder buffer size  $E_n$ ) (col. 10, lines 54-67), and extrapolating from a parameter of one of the multiple sets (Eq. 7, encoder buffer size  $E$ ) (col. 10, lines 54-67).

**Regarding claim 120**, Ozkan et al discloses setting the peak rate based upon one or more of the decoder buffer size parameters of the multiple sets, or setting the decoder buffer size based upon at least one of the rate parameters of the multiple sets (Col. 11, lines 1-57; see also Eq. 8).

6. Claim 78, 98, 111, and 123 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ozkan et al and Hurtst Jr., as applied to 67, 92, 108, and 121 above respectively, and further in view of Morris (6,873,629).

**Regarding claims 78, 98, 111, and 123**, the combination of Ozkan et al and Hurst Jr. does not seem to disclose multiple sets being signaled in a stream header of the given video bit stream.

However, Morris teaches multiple sets being provided in a stream header for the given video bit stream (col. 6, lines 21-36).

Therefore, it would have been considered obvious to a person of ordinary skill in the relevant art employing Ozkan's method to incorporate the Morris' teaching for an easy identification of the sequence being transmitted to the decoder, since conventionally, a header is known as a notification flag.

**Conclusion**

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to *Shawn S. An* whose telephone number is 571-272-7324.

9. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

10. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
**SHAWN AN**  
**PRIMARY EXAMINER**

3/4/07